



WOMEN'S HEALTH **In Focus** AT NIH

Newsletter of the NIH Office of Research on Women's Health

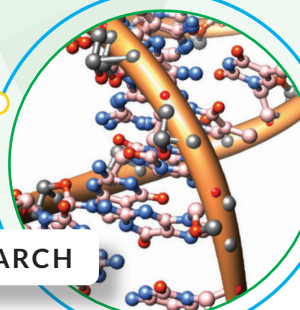
NATIONAL INSTITUTES OF HEALTH • OFFICE OF THE DIRECTOR | VOLUME 1 ISSUE 1 • SPRING 2018

Click on image or bar title for stories

DIRECTOR'S CORNER



BIOMEDICAL RESEARCH



FEATURE STORY

Overcoming depression and understanding the mind-body connection in heart disease and other conditions



FUNDING OPPORTUNITIES



WOMEN IN SCIENCE



UPCOMING EVENTS



Also inside:

- In the Journals
- Noteworthy

NIH Office of Research on Women's Health (ORWH)

6707 Democracy Boulevard, Suite 400, Bethesda, MD 20817 • Phone: 301-402-1770
ORWHinfo@mail.nih.gov • Twitter: @NIH_ORWH • Facebook: @NIHORWH

Visit the newsletter subscription page to sign up to receive future issues of *Women's Health in Focus at NIH*. To learn more about ORWH, visit nih.gov/women.

Mental Illness and Chronic Conditions in Women: The Mind-Body Connection

Terrie M. Williams was an accomplished public relations agent representing the likes of Eddie Murphy, Janet Jackson, and Miles Davis. Her New York agency was flourishing, and she had success, money, and access.

At work, Williams was a dynamo. On most days, by 9 a.m. she had read five papers, placed twenty calls, and spoken to over a dozen people. She was rarely home before midnight. But, one day, everything changed. "I was asking myself, *What's wrong with me? Why am I sad? Why am I crying?*" said Williams.

One day, she woke up with a knot in her stomach so paralyzing that she turned the lights off, drew the shades, and decided to stay in. For three days she lay in bed, not answering the phone or returning emails. She had disconnected from the world and didn't care.

On the fourth day, she heard a knock on the door. Her friends, who had keys to the apartment, came in and stayed for three hours. They helped her wash the dishes, get showered, and dress up for an emergency appointment they made with a therapist that same day.

Although Williams had experienced symptoms of depression before, it wasn't until after the shut-in episode and the therapy visit that she finally accepted she had clinical depression. "I knew that something was wrong and that I needed help," she said.

According to the National Institute of Mental Health, individuals with depression are at an increased risk for diabetes, cardiovascular disease, and stroke.

Williams eventually received appropriate medical treatment and, over time, became functional again, but a nagging voice told her she should speak about her depression.

"I was afraid of sharing my story," she said. "I thought it would be career suicide to speak about depression publicly, but, when we go through the fire and come out on the other side, we have a responsibility to share our experience with others."

In 2005, in a fit of bravery, she wrote an article for *Essence* magazine "outing" herself and her depression. The reaction astonished her. The article generated 10,000 letters, nearly half of them from people talking about their pain and depression for the first time. "It felt like a dam broke," said Williams.

Since then, Williams has written a book about her experience — *Black Pain: It Just Looks Like We're Not Hurting* — and crisscrossed the country speaking about depression.

"There are some things people don't talk about, especially a lot of people of color, who may feel they already have a strike against them. But I felt someone needed to talk about this topic. I couldn't just push it under the rug," she said.

For more information about depression or other mental disorders, visit the website of the National Institute of Mental Health at nimh.nih.gov.

Continued on page 3



Terrie M. Williams
Shares her story of
overcoming depression.

It gives me great pleasure to introduce the inaugural issue of Women's Health in Focus at NIH, the newsletter of the National Institutes of Health (NIH) Office of Research on Women's Health (ORWH). The newsletter is designed to showcase women's health research being performed across the NIH Institutes and Centers and to highlight relevant scientific advances.

Doing research to improve the health of women and delivering optimal clinical care to women require us to think holistically about women's health — from head to toe, across the life course, and with due attention to the influences of race and ethnicity on health and disease. The feature article in this issue explores the holistic mind-body connections among depression and chronic conditions like diabetes and heart disease, especially as they relate to women. In addition, the newsletter provides content of interest to women in biomedical careers.

We will also share exciting announcements of recent and forthcoming ORWH activities and ORWH funding opportunities for research on sex differences and women's health. Please share our newsletter widely and encourage others to subscribe.



Janine Austin Clayton, M.D.
Director, NIH Office of Research
on Women's Health and NIH
Associate Director for Research
on Women's Health

TABLE OF CONTENTS

- 2 Director's Corner**
- 2 Feature Story**
Mental Illness and Chronic Conditions in Women: The Mind-Body Connection
- 5 Biomedical Research**
SABV - More Scientific Journals Adopt Sex-Specific Reporting Guidelines
- 6 In the Journals**
Study Shows Effect of Preeclampsia on Brain Circulation Many Years after Pregnancy Despite Differences in Age-Related Spine Curvature, Women and Men Respond Similarly to Therapy
- 7 Women in Science**
7 Featured Research and Perspectives
7 Did You Know?
8 Current News and Reports
9 Scientist Spotlight: Lisa L. Barnes, Ph.D.
- 10 Noteworthy**
- 13 Upcoming Events**
- 13 Funding Opportunities**

The Connection Between Mental and Physical Health

Although depression affects both men and women, it is more prevalent in the latter, with women experiencing depression at roughly twice the rate of men.^{1,2} Matters are made worse, researchers have found, in that depression often coexists with chronic physical conditions such as heart disease and diabetes.

According to the **National Institute of Mental Health**, individuals with depression are at an increased risk for diabetes, cardiovascular disease, and stroke.³ Also, individuals with both depression and another illness tend to experience more severe symptoms of both conditions.³

“Many chronic conditions are associated with an increased risk of depression,” said Gregory Simon, M.D., M.P.H., a psychiatrist and Senior Investigator at the Kaiser Permanente Washington Health Research Institute.

“We used to think that depression hindered patients’ ability to address their other conditions, such as diabetes, so, if we just gave people better depression treatment, everything would get better, but our study findings didn’t support this,” said Dr. Simon, referring to the 2004 Pathways Study funded by the **National Institute of Mental Health**.⁴ “We learned that, in people with a complex combination of chronic illness and depression, you need to consider the whole picture.”

Dr. Simon and his colleagues devised a new study focusing on 214 patients with poorly controlled diabetes, coronary heart disease, or both, along with coexisting depression.⁵ “The study focused on identifying and treating depression as well as helping people make and accomplish goals related to diabetes and heart disease care,” said Dr. Simon. “The study showed impressive results. It not only improved patients’ depression but also improved control over their diabetes and heart disease.”

Dr. Simon believes that coordinated care is an effective way to treat coexisting conditions in patients.

“You may have multiple physician providers involved — a primary care physician, a psychiatrist, or other medical specialists — but you need to have someone who is looking at the whole thing,” he said.

In the past, an individual may have gone to a doctor for their diabetes or heart disease and not be diagnosed with depression, but Simon believes that’s changing. According to him, over the past few decades, the proportion of people obtaining diagnosis or treatment for depression has more than doubled.

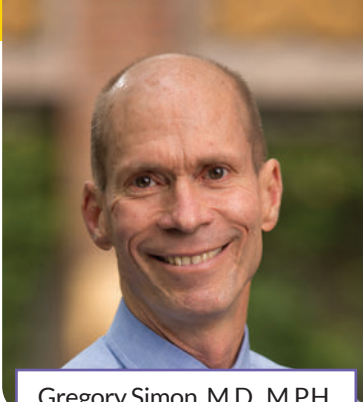
“The fact that primary care physicians often don’t recognize depression is something of an outdated notion,” said Dr. Simon. “In the training physicians receive today, depression is quite prominent. Also, NIH has fortunately recognized the triumvirate of depression, diabetes, and heart disease as a major public health issue, giving it some visibility.”

However, according to Dr. Simon, other issues persist. “The problem is not that primary care physicians don’t know how to tell when someone is depressed; the problem is [the lack of] follow-up to continue treatment. With depression, follow-up tends to be harder when compared to other conditions,” he added.

“Some patients won’t return after a therapist visit, or if their doctor gave them a prescription for an antidepressant, they may not take it or refill it,” said Dr. Simon. In addition to follow-up, there is variation in the ways that different people respond to the same treatment.

“On average, for those starting to take antidepressants, roughly 60% will notice an improvement. So, the same treatment might not work on everyone,” said Dr. Simon. “We need a better understanding of the variation in how different people respond to different treatments and in matching the right treatment — be it medication or type of psychotherapy — to the right person.”

Continued on page 4



Gregory Simon, M.D., M.P.H.
Kaiser Permanente
Washington Health
Research Institute

NEWSLETTER STAFF

NIH Office of Research on Women’s Health

Dr. Janine Austin Clayton
*Director, ORWH and NIH Associate
Director for Research on Women’s Health*

Ms. Elizabeth Spencer
Deputy Director, ORWH

Dr. Margaret Bevans
*Associate Director, Clinical Research
Program, ORWH*

Dr. Victoria Cargill
*Associate Director, Interdisciplinary
Research Program, ORWH*

Dr. Chyren Hunter
*Associate Director, Basic and
Translational Research Program,
ORWH*

Women in Science Section Editor
Dr. Melissa Ghim
Health Scientist Administrator, ORWH

Editorial Team

Mr. Lamont Williams
Editor-in-Chief

Dr. Matthew Arnegard¹
Managing Editor, Senior Writer

Dr. Katharine Atwood²
Contributing Writer

Ms. Lisa Maroski³
Contributing Writer

Mr. Al Staropoli⁴
Contributing Writer

Ms. Carolinda Hales⁴
Copyeditor

Ms. Julie Grace⁴
Graphic Artist

¹ **The Scientific Consulting Group (SCG), Inc.**

² **Pacific Institute for Research and Evaluation (PIRE)**

³ **Kelly Services, Inc.**

⁴ **Campbell & Company**



Lynda Powell, Ph.D.
Rush University Medical Center

The Role of Stress

Lynda Powell, Ph.D., M.Ed., is another researcher who has been intrigued by the mind-body connection for decades. She is currently a Professor of Preventive Medicine, Medicine, and Behavioral Sciences at Rush University Medical Center in Chicago. She is also the Principal Investigator of a **National Heart, Lung, and Blood Institute (NHLBI)**-sponsored center at that university, which supports multiple research projects.

At the beginning of her research career, in the mid-1980s, Dr. Powell studied individuals with type-A personality who had heart attacks. Dr. Powell and her colleagues wanted to find out what would be the effect of stress reduction in these patients.

In the study, one group of patients received both type-A personality stress management counseling and cardiologic counseling, while a separate group of patients received only cardiologic counseling. After three years, the patients who received both cardiologic counseling and counseling to reduce their stress had, on average, a 44% lower cardiac recurrence rate of nonfatal infarctions.⁶

“This clearly showed us that stress reduction can indeed play a role in improving clinical outcomes,” said Dr. Powell. “Back then, this was something of a novel finding.”

With a \$10 million **NHLBI** grant, Rush University Medical Center developed The Center for Urban Health Equity. Led by Dr. Powell, the Center conducts behavioral clinical trials with an emphasis on the role of stress in the disease process. The trials are conducted through community partnerships in many of Chicago’s disadvantaged areas and have the goal of reducing health disparities in heart and lung diseases.

Dr. Powell began to examine major stress and trauma in these communities. She knew that trauma and post-traumatic stress disorder (PTSD) had been extensively studied in veterans but wanted to know if they also affected disadvantaged communities. To investigate this possibility, one of the trials that the Center launched was the Congestive Heart Failure Adherence Redesign Trial (CHART). Responses to a standardized questionnaire revealed that 43% of individuals said they had experienced a traumatic event.

The most common traumatic event mentioned was “seeing someone seriously injured or violently killed” (23%), followed by “being attacked with a gun, knife, or some other weapon” (19%). Other traumatic events included physical assault, sexual assault, childhood sexual abuse, serious accidents, and other life-threatening events.⁷

The study found an association among these traumatic events, PTSD, and other medical conditions. Individuals in this community reported approximately three times the rate of probable PTSD as compared with the general adult U.S. population (10% vs. 3.5%, respectively).^{7,8}

Traumatic events were associated with increased prevalence of coronary artery disease, hypertension, chronic obstructive pulmonary disease, and cardiac arrest.

The study also took into account major depression and found that depression and PTSD were different risk factors. “Depression and PTSD have different treatments, and both need to be treated,” said Dr. Powell.

Dr. Powell believes that clinicians need to be more aware of identifying “invisible” mental illnesses, such as major depression and PTSD, in disadvantaged communities. This ability is important, because these illnesses are both risk factors for cardiopulmonary diseases. Failure to treat them can undercut efforts to manage chronic diseases and promote health.

After decades of conclusive research, Dr. Powell is now convinced of the importance of acknowledging the mind-body connection in the clinical setting.

“We need to recognize that the mind and the body are intimately interconnected,” she said, “and to start taking more of a holistic approach with our patients. An approach that connects mind and body is particularly important for women and disadvantaged populations, in whom the impact of stress on physical health is the greatest.”



1. [Mental Health America. “Depression in Women.”](https://www.mentalhealthamerica.net/conditions/depression-women) mentalhealthamerica.net/conditions/depression-women. Accessed 30-Dec-2017.

2. [Albert. 2015. J. Psychiatry Neurosci. 40: 219-221.](#)

3. [National Institute of Mental Health. “Chronic Illness & Mental Health.”](https://www.nimh.nih.gov/health/publications/chronic-illness-mental-health/index.shtml) nimh.nih.gov/health/publications/chronic-illness-mental-health/index.shtml. Accessed 2-Jan-2018.

4. [Katon et al. 2004. Arch. Gen. Psychiatry 61: 1042-1049.](#)

5. [Katon et al. 2010. N. Engl. J. Med. 363: 2611-2620.](#)

6. [Friedman et al. 1984. Am. Heart J. 108: 237-248.](#)

7. [Taylor-Clift et al. 2016. J. Affect. Disord. 190: 227-234.](#)

8. [National Institute of Mental Health. “Post-Traumatic Stress Disorder among Adults.”](https://www.nimh.nih.gov/health/statistics/prevalence/post-traumatic-stress-disorder-among-adults.shtml)

nimh.nih.gov/health/statistics/prevalence/post-traumatic-stress-disorder-among-adults.shtml. Accessed 12-Jan-2018.

More Scientific Journals Adopt Sex-Specific Reporting Guidelines

One of our goals at ORWH is to develop and disseminate tools and resources to help facilitate the implementation of the Sex as a Biological Variable (SABV) Policy ([NOT-OD-15-102](#)) across the NIH's 27 Institutes and Centers, as well as the adoption of this policy by other stakeholders with a focus on women's health research. Journal editors represent a key group of these stakeholders, as the gatekeepers to scientific publication — the “stock in trade” of scientific discourse. Indeed, transparency about the sex of cells and animals used in studies and the reporting of data disaggregated by sex are necessary for rigorous and reproducible scientific research and to help ensure that women receive the full benefit of scientific investigations.

We are greatly encouraged by the increasing number of journals that have adopted sex-specific reporting guidelines in their instructions to authors since the SABV policy went into effect. For example, in October 2016, the editors of *Stroke* developed an expanded checklist of reporting standards, which authors of preclinical investigations must complete prior to submission of their manuscripts. The explanatory accompaniment to the checklist requests authors to “give due consideration to the use of animals [of] both sexes during experimentation.”¹ If only one sex was used, the authors must provide the reasons for this in their manuscript. The explanatory accompaniment to the checklist also encourages authors to describe the sex composition of each experimental group of animals and to disclose whether sex was a part of the study's inclusion or exclusion criteria. *Stroke* publishes the completed checklists as online supplements to its articles on preclinical animal research.

A month later (November 2016), the *Journal of Neuroscience Research (JNR)* published a policy to ensure the proper consideration of SABV. Authors using only one sex of cells, animals, or humans must disclose this in their titles, and they are required to state the number of samples or subjects of each sex in the methods.² The *JNR* policy also encourages experiments with both male and female samples or subjects, from which meaningful comparisons between the sexes can be made, and it instructs authors who do not investigate sex differences to discuss this as a study limitation. Even in studies that were not explicitly designed and powered to test for sex influences, the editors of *JNR* encourage “exploratory comparisons” between sexes, though care is warranted in the interpretation of potential sex influences detected in exploratory studies of this kind.³

Associate Director,
Basic and Translational
Research Program,
ORWH



Adding to the number of journals implementing sex-specific reporting policies, the American Society of Microbiology (ASM) updated its instructions to authors this past January. The ASM publishes more than a dozen primary-research journals. The new instructions for these journals require authors to report the sex of research animals and human subjects and of materials derived from them, such as primary cell lines and clinical samples.⁴ This policy addresses an important shortcoming in ASM publication practices. According to a survey of nearly 3,000 primary-research articles published in ASM journals in 2016, most studies using primary cells from humans and vertebrate animals failed to report the sex of the cell donors. The percentage of studies reporting the sex of vertebrate animals was slightly higher, yet the authors of a substantial proportion of these investigations did not report the sex of animals used in their research.⁴

ORWH applauds *Stroke*, *JNR*, the ASM journals, and other publications for adopting sex-specific reporting guidelines in their instructions to authors.

ORWH applauds *Stroke*, *JNR*, the ASM journals, and other publications for adopting sex-specific reporting guidelines in their instructions to authors. We encourage journals lacking this policy to follow suit. Beyond the rigorous reporting of the sex of cells, animals, and human research participants, the wider reporting of data disaggregated by sex, even when no significant sex influences are found, will meet an ongoing need for complete scientific information — ultimately, to improve the health of women and men. For more information, please visit the [ORWH website](#) on SABV.

1. Vahidy et al. 2016. *Stroke* 47: 2435-2438.
2. Prager. 2017. *J. Neurosci. Res.* 95: 11.
3. Rippon et al. 2017. *J. Neurosci. Res.* 95: 1357-1359.
4. Potluri et al. 2017. *mBio* 8: e01868-17.



Study Shows Effect of Preeclampsia on Brain Circulation Many Years after Pregnancy

(Original article by [Barnes et al. 2018. Hypertension 71: 110-117.*](#))

**The last author on this paper, Virginia Miller, Ph.D. (Department of Surgery, Mayo Clinic), was a recipient of a Specialized Centers of Research (SCOR) on Sex Differences Award, funded by ORWH and the National Institute on Aging. This award supports interdisciplinary approaches to advance translational research on sex differences underlying medical conditions affecting women.*

Postmenopausal women with a history of preeclampsia are at increased risk for cognitive decline, yet the mechanisms associated with this risk are not well understood. Cerebrovascular reactivity (CVR) — or a change in cerebral blood flow in response to a vasodilatory stimulus — is lower in patients with cognitive decline. Pregnant women with lower CVR are more likely to develop preeclampsia and those with preeclampsia have lower CVR than women with normal blood pressure during pregnancy (i.e., normotensive pregnancy).

It is not known whether women with a history of preeclampsia experience lower CVR years after pregnancy, or whether there is a relationship between CVR and activation of blood cellular elements. In a recent study published by the journal *Hypertension*, Jill Barnes, Ph.D., and colleagues compared CVR among postmenopausal women with a history of preeclampsia to that of women who experienced normotensive pregnancy. Subjects were exposed to a vasodilatory stimulus (heightened levels of CO₂ in the blood) to gauge CVR level.

The study also examined the association between activation of blood cellular elements and CVR. Women with a history of preeclampsia had lower CVR at baseline and also when exposed to the vasodilatory stimulus compared with women with a normotensive pregnancy history. There was also an association between CVR and activation of blood cellular elements. The authors' findings suggest that a history of preeclampsia may affect brain circulation many years after pregnancy.

IN THE JOURNALS

Despite Differences in Age-Related Spine Curvature, Women and Men Respond Similarly to Therapy

(Original article by [Katzman et al. 2017. BMC Musculoskelet. Disord. 18: 509.*](#))

**The last author on this paper, Nancy Lane, M.D. (Director, University of California-Davis Center for Healthy Aging), was a recipient of a Specialized Centers of Research (SCOR) on Sex Differences Award, funded by ORWH and the National Institute of Arthritis and Musculoskeletal and Skin Diseases.*

Hyperkyphosis (excessive curvature of the upper spine) impedes health status in older adults and is more common among women than men. Currently, there is no standard intervention to improve age-related hyperkyphosis. Wendy Katzman, PT., D.P.T.Sc., O.C.S., and colleagues recently conducted a randomized controlled trial of a one-hour, twice-a-week intervention lasting 12 weeks, as applied to community-dwelling men and women with a mean age of 70 years. The intervention included exercises targeting spinal muscle strength, spinal mobility, and postural alignment. The study assessed the impact of the intervention on change in spine curvature (measured radiographically by Cobb angle and externally by using a kyphometer), physical function, and quality of life.

Dr. Katzman and colleagues detected differences in baseline musculoskeletal measures between men and women. The authors also found that the intervention resulted in significant improvement in kyphosis when measured externally with the kyphometer. However, no differences in improvement were found by gender, which suggested that both men and women would benefit from the intervention. Reporting results disaggregated by gender, even when no gender differences are found, is critical to determining when the same interventions can be optimally applied to women and men, as opposed to cases in which interventions are best applied in a gender-specific manner, as is often the case across many domains of medicine.

The authors' findings also suggest that extending intervention duration for both men and women may result in improvements in spine curvature as measured radiographically and that inclusion of more resistance exercises may yield further benefits.



Featured Research and Perspectives

Gender Difference in Depression among Medical Interns Largely Explained by Work-Family Conflict

(Original article by [Guille et al. 2017. JAMA Intern. Med. 177: 1766-1772.](#))

Many practicing physicians know that the high demands of internships and residency programs can increase the prevalence of symptoms of depression. Roughly a quarter of training physicians experience depression at some point in time, which can have negative effects on the quality of patient care and the retention of doctors in the medical profession. In the first prospective study of its kind, a team of researchers led by Constance Guille, M.D. (Department of Psychiatry and Behavioral Sciences, The Medical University of South Carolina), investigated gender differences in the self-assessed depression scores of medical interns, as well as the impact of work-family conflict on the change in depression scores during the doctors' internships. Just before the start of the internship year, depression scores were similar between male and female doctors so were the work-family conflict scores. However, Guille and colleagues found that, over the first six months of their internships, women experienced a greater increase in symptoms of depression than men. When the authors took work-family conflict into account, the difference in depression scores between men and women dropped by more than a third. This result suggests that interventions aimed at reducing work-family conflict may be effective in lowering depression in training physicians. Funding for this study was provided by the **National Institute on Drug Abuse**, the **National Institute of Mental Health**, and the **National Center for Advancing Translational Sciences**.

Boston University Medical Professors Call for Integration of Social Determinants of Health into Medical Education

(Original article by [Siegel et al. 2018. Acad. Med. 93: 159-162.](#))

Social determinants of health (SDH), described as the circumstances in which people live, work, and age, have profound effects on health outcomes and disproportionately affect women and children. Writing in the journal *Academic Medicine*, three professors at Boston University School of Medicine — Jennifer Siegel, M.D., David Coleman, M.D., and Thea James, M.D. — suggest that recognizing the effects of SDH on health and providing skills to mitigate their impact should become vital components of graduate medical school training. The authors propose five principles for integration using experiential, modeling, and service learning approaches: 1) Universalize the curricula across clinical training programs to develop a core set of knowledge and skills to recognize and address SDH. 2) Seamlessly integrate these skills using formal and informal approaches. 3) Provide opportunities to explore how one's personal story affects perceptions of SDH. 4) Define the specific communication skills and other competencies needed to identify and mitigate SDH. 5) Establish robust faculty development programs to model and teach these approaches.



DID YOU KNOW?

The NIH Women of Color Research Network Has a LinkedIn Page



The Women of Color Committee, a subcommittee of the [NIH Working Group on Women in Biomedical Careers](#), has a LinkedIn site. Every Wednesday, the NIH Women of Color Research Network (WoCRn) LinkedIn page features a new educational or professional opportunity for early career scientists and other investigators, posts exciting research from the NIH, or highlights a woman of color in science. The site exists as a professional network for women of color and their advocates in science- or medicine-related roles. The aims of the site are to disseminate information on NIH funding opportunities and to facilitate

networking, so that interested women in science can become aware of one another. In particular, we hope to encourage and offer support to younger women of color with career aspirations in science. However, the network is not solely for early career scientists or even women of color. We encourage all professionals in science and medicine to become members of our LinkedIn group. The group can be accessed on the [WoCRn website](https://womeninscience.nih.gov/women-of-color) (<https://womeninscience.nih.gov/women-of-color>). Please join our network and spread the word!

Women Are Invited to Give Fewer Talks Than Men at Top U.S. Universities

(Original article by [Ed Yong, The Atlantic, December 18, 2017.](#))

According to several recent studies, gender bias exists regarding who is invited to give presentations at university colloquia: most of the speakers are men. Raw numbers showed that men gave more than twice as many talks as women (69% versus 31%), and data adjusted for relative numbers of men and women in the various fields showed that men are still 20% more likely to be invited to give colloquium talks than women. Men also outnumber women among speakers at several scientific conferences. When women are given more power over inviting colloquium speakers, half of the invited speakers are women, compared to just 30% when the program committees are chaired by men.



A First: Women Outnumber Men in 2017 Entering Medical School Class

(Original article by [Eve Glicksman, AAMCNews, December 19, 2017.](#))

The Association of American Medical Colleges (AAMC) reports that for the first time in history, the proportion of women entering U.S. medical schools (50.7%) surpasses that of men. Diversity also increased: from 2015 to 2017, the number of African-American students increased by 12.6%, and the number of students who were Hispanic, Latino, or of Spanish origin rose by 15.4%. Because minority students are up to three times as likely to practice medicine in a community made up of individuals from the same race or ethnicity and to practice in medically underserved areas, this increase in diversity will help address important public health needs. However, despite a slight increase in the number of enrollments, the AAMC predicts that, by 2030, there will be a significant shortage of doctors, especially as the population ages. The original article links to [full matriculant data tables](#) (<https://goo.gl/wdDEPq>).



Gender Diversity Leads to Better Science

(Original article by [Nielsen et al. 2017. PNAS 114: 1740-1742.](#))

In an opinion piece recently published in the *Proceedings of the National Academy of Sciences (USA)*, Mathias Nielsen, Ph.D., and colleagues highlight findings presented at a workshop titled “Is There a Gender-Diversity Dividend in Science?” The workshop was held at Stanford University on February 26, 2016. The answer to the question posed at the workshop is a guarded “Yes, but” For there to be a dividend in the form of innovation, several factors within the organizational context must be carefully balanced, including a positive climate for gender diversity, a nonhierarchical organizational structure, engagement with managers, and critical mass, among other factors. Once organizations have a critical mass of women — at least 15%–30% — women experience less stereotyping, more involvement in decision-making and teamwork, and higher levels of support. Furthermore, in research teams, women’s presence in the author byline was positively correlated with the use of sex- and gender-based analyses.



Lisa L. Barnes, Ph.D.

Dr. Lisa L. Barnes is a Professor of Neurological Sciences and Behavioral Sciences at Rush University in Chicago, Illinois. She is also a cognitive neuropsychologist in the Rush Alzheimer's Disease Center, and serves as Director of the Rush Center of Excellence on Disparities in HIV and Aging. Dr. Barnes received a B.A. in Psychology in 1990 from Clark Atlanta University and an M.A. and Ph.D. in Biopsychology from the University of Michigan, where she completed her dissertation on "Shared Mechanisms of Object-Based Attention and Object Working Memory" in the laboratory of her mentor, Patricia Reuter-Lorenz, Ph.D. In 1999, Dr. Barnes was a Postdoctoral Fellow in Cognitive Neuroscience at the University of California, Davis. Currently, her research focuses on racial disparities in chronic diseases of aging, particularly Alzheimer's disease. She was named a "Remarkable Woman" by the *Chicago Tribune* in 2014, and received the Centennial Scholar Award from the Institute of Medicine of Chicago in 2015. In 2017, Dr. Barnes earned the prestigious NIH Pioneer Award for an advanced training course titled "Frontiers in Aging and Regeneration Research."

Dr. Barnes studies the risk factors and health disparities that lead to the high incidence of Alzheimer's disease in African Americans. She remarks, "My studies are epidemiologic in structure. I enroll African Americans without known dementia and follow them longitudinally — so I evaluate them every year — testing their memory, interviewing them about their life, their activities, and their experiences, so that I can identify risk factors for Alzheimer's disease."

Dr. Barnes is the Principal Investigator of three longitudinal studies that enrolled a large number of African Americans: 1) one funded by a **National Institute on Aging** grant to identify risk factors for change in cognitive function among older African Americans, 2) another funded by a **National Institute on Minority Health and Health Disparities (NIMHD)** Center of Excellence Award that supports infrastructure for collaborative, multi-disciplinary epidemiologic research to better understand and address health disparities in aging-related consequences of HIV, and 3) a third project funded by an **NIMHD** administrative supplement to examine sex/gender differences in the interrelationships of psychological trauma, resilience, and cognitive function in aging men and women with HIV.

"Whether you are being a mentor or sponsor or just being a good role model, we women must pave the way for people coming behind us."

Who were your scientific role models?

Back in college, I had a professor of psychobiology, Marge Weber-Levine, Ph.D., who had an NIH Minority Access to Research Careers (MARC) grant, which enabled me to develop research skills and exposed me to key researchers in the field. I was able to do a summer internship at MIT [Massachusetts Institute of



Lisa L. Barnes, Ph.D., Rush University, gave the NIH Director's Wednesday Afternoon Lecture Series (WALS) presentation on February 28, 2018. She talked about racial disparities in chronic diseases of aging, with a focus on Alzheimer's disease and cognitive decline. [A videocast of Dr. Barnes' lecture is available online](https://goo.gl/fKnHwD) (https://goo.gl/fKnHwD).

Technology], which allowed me to work with a famous neuropsychologist, Suzanne Corkin, Ph.D., who had a famous patient, H.M., who had intractable epilepsy. At that time, the only treatment available was to remove the hippocampus bilaterally. His epilepsy improved, but he had profound amnesia. I got to meet this patient, whom I read about in all my intro psychology books and was able to test his memory. It was fascinating; that grant paid my tuition in full and gave me a stipend. Thus, I didn't have to work three jobs. It also exposed me to incredible researchers in the field and gave me experiences that I will treasure forever.

Whether you are being a mentor or sponsor or just being a good role model, we women must pave the way for people coming behind us.

My other scientific role model and mentor is my Ph.D. advisor, Patricia Reuter-Lorenz, Ph.D. She came to the University of Michigan in my third or fourth year. She was in another department — Cognition and Perception — and was young and fresh. There was something about her that made me think, "I want to be like her." I started working in her lab while still working on my dissertation with my other advisor. Patricia spent hours with me, teaching me how to program the computer for the experiments. She was very systematic in her approach and gave me the tools to write good research papers. She spent a lot of time with me and was very patient and nurturing. You could see that she enjoyed what she was doing; she had a passion for it. I really admired that.

Continued on page 10

What have been the most rewarding aspects of your career?

A highlight for me is my work with the older African-American community, because that is where I feel I am making a difference. When I started helping to educate the community about Alzheimer's disease and to learn about risk factors that might be specific to African Americans, I felt like I was making important contributions, not only to science but also to society, to real people. You get immediate gratification when working with people for whom you're making a difference.

What is the career achievement of which you are most proud?

I'm doing something that other people have tried and haven't been able to do; namely, I'm trying to recruit for brain donation in older African Americans. We're studying Alzheimer's disease and we have a lot of brain tissue from older Whites, but very few studies have tissue from older Blacks. I am trying to change that. I have had some success. We have more [tissue from African Americans] than any other study in the country.

How do you manage work-life integration? Do you have tips for young scientists about this?

Quality of life is of utmost importance, so I'm always evaluating whether what I'm doing is affecting my quality of life. If I am working on a grant, then I'm doing that 100%. Women are good at multitasking, but when you're doing something, you have to be present. If I am at my kids' soccer event or gymnastics meet, I'm not in the bleachers with my laptop working on my grant. Another important thing is to make sure you have a purpose that is bigger than your job, bigger than anything — something that really drives you. I am a practicing Buddhist. An important purpose for me is to work for world peace and to help other people become happy.

When that's my focus, I feel I am better able to integrate the different areas of my life and not get super-focused on only one part. Having a balance where everything is in moderation, whether it's work or family or self, is very important as well.

Why is it important to support and encourage the next generation of female scientists?

We still do not have gender equity. There are so many barriers to our success as women. I've been at this for 18 years now, and I've had a lot of success; now I feel like I need to pay back as a show of gratitude and appreciation for all the help I've gotten along the way. If we as women scientists don't invest in the future of women scientists, then we won't be able to advance science, because women have so much potential as scientists. Whether you are being a mentor or sponsor or just being a good role model, we women must pave the way for people coming behind us. There's an African proverb to the effect that "People who stand above the crowd do so on the shoulders of others." They helped pave the way for you, so you also must help pave the way for others.

How is it different for today's crop of women scientists than when you were in school?

There's more opportunity, more that women can do now. The barriers are still there, but we have technology. Now you have to know a lot more. When I was coming up, you could do a deep dive into one thing and know that thing really well. But now you have to be good at so many different things. You need to have breadth in addition to having depth in your study. I think that's a bit more challenging for people, but because of technology we're perhaps better able to handle it. It's much more multidisciplinary than it was in the past, which is good, but it's also a challenge.

NOTEWORTHY

Advisory Committee Publishes Latest Report on Women's Health Research

NIH's Advisory Committee on Research on Women's Health recently published its [Report of the Advisory Committee on Research on Women's Health](https://goo.gl/qk16Hn) (https://goo.gl/qk16Hn). This biennial report details the NIH-wide programs carried out and the accomplishments achieved in fulfillment of ORWH's core mission. The report also provides highlights from research on women's health and on the influence of sex and gender on health and disease — research that is supported by NIH Institutes and Centers and the NIH Office of the Director. Additionally, the report presents information on NIH budget allocations for women's health research during fiscal year (FY) 2015 and 2016, and it documents the inclusion of women and minorities in NIH-funded clinical research during these years.



2017 Annual
BIRCWH
Meeting

Building Interdisciplinary
Research Careers in
Women's Health

Annual BIRCWH Meeting Emphasizes Collaboration and Other Keys to Career Success

The 2017 meeting of the Building Interdisciplinary Research Careers in Women's Health (BIRCWH, pronounced "BIRCH") Program was held on October 25, 2017, on the NIH campus. Afua Bruce, B.S., M.B.A., former Executive Director of the National Science and Technology Council at The White House, gave the keynote address titled "Collaboration across the Federal Government for Science and Technology." Kay Lund, Ph.D., Director of the NIH Division of Biomedical Research Workforce Programs, **Office of Extramural Research**, and several faculty members from across the country served on a panel titled "Keys to a Long and Successful Career: Survival Lessons from Experience and History." As part of the plenary sessions, Kara Hall, Ph.D., Director of the Theories Initiative, presented on Team Science

resources developed by the **National Cancer Institute**. The meeting included a poster session in which the most competitive BIRCWH Scholars presented their cutting-edge research projects. The top three posters were presented orally to all meeting attendees. Meeting abstracts were published in the *Journal of Women's Health* (<https://ncbi.nlm.nih.gov/pubmed/28922084>). There was also a mentoring session at which NIH Research staff advised the BIRCWH Scholars on future funding opportunities. [A video recording of the event is available online](#) (<https://goo.gl/7HrCy1>).

The BIRCWH Program is a mentored career-development program that connects junior faculty (BIRCWH Scholars) to senior faculty with a shared interest in women's health and sex-differences research. To be eligible for the BIRCWH Program, junior faculty — women and men — must have recently completed their clinical training or postdoctoral fellowship and must plan to conduct interdisciplinary research relevant to women's health. To learn more, visit the [BIRCWH page](#) on the ORWH website.

Videocast of Sex as a Biological Variable (SABV) Workshop Available on the NIH Website

In 2015, NIH announced policy changes ([NOT-OD-15-102](#)) to ensure that sex as a biological variable (SABV) is considered in vertebrate animal and human studies. The first SABV Workshop took place October 26-27, 2017, on the NIH campus. This workshop highlighted scientific insights from a select number of researchers who received supplemental funding through ORWH or the NIH Office of Strategic Coordination (Common Fund) to address several topics: sex differences in brain function and behavior; interactions of sex effects with external influences on health and disease; sex differences in animal models and sex differences in gene expression. The workshop included a panel discussion on accounting for SABV in biomedical research. [A videocast of the workshop presentations is available online](#) (<https://commonfund.nih.gov/sexdifferences/workshop>).

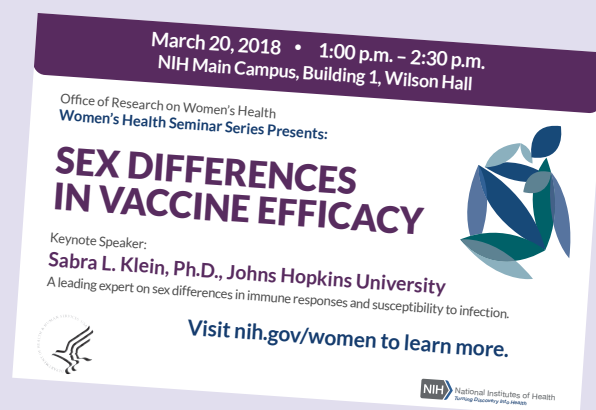
NIH Inclusion Policy for Clinical Research Amended — A 21st Century Cures Act Requirement

On November 28, 2017, NIH amended the “NIH Policy and Guidelines on the Inclusion of Women and Minorities as Subjects in Clinical Research.” NIH grant recipients conducting applicable Phase III clinical trials must submit valid analyses by sex/gender and race/ethnicity to [ClinicalTrials.gov](#). Clinical trials subject to this regulation include trials of drugs, biological products, and devices regulated by the Food and Drug Administration. The amended policy applies to all competing grants and cooperative agreements awarded on or after December 13, 2017. Applicable clinical trials are required to be registered in ClinicalTrials.gov no later than 21 calendar days after enrollment begins, and analyses by sex/gender and race/ethnicity must be submitted no later than one year after the trial's primary completion date. For more information, see NIH Notice Number [NOT-OD-18-014](#).

ORWH Launches New Women's Health Seminar Series

As part of our effort to implement the NIH-wide Strategic Plan for Women's Health Research, ORWH introduced the new ORWH Women's Health Seminar Series on December 7, 2017. This program features speakers presenting the latest information on scientific topics important to the health of women across the lifespan. The most recent seminar in this series occurred on March 20, 2018; it featured Sabra Klein, Ph.D., Associate Professor, Department of Molecular Microbiology and Immunology, Johns Hopkins University. In her talk, titled “Sex Differences in Vaccine Efficacy,” Dr. Klein highlighted sex differences in autoimmune disease and vaccine efficacy. A recording of Dr. Klein's seminar is available on the [NIH Videocasting website](#).

The next seminar, titled “Women, Heart, and Brain,” will be held on June 7, 2018. For more information, please visit the [ORWH website](#).



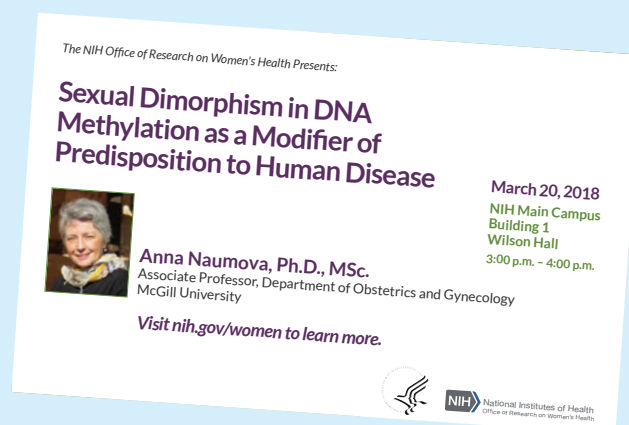
Dr. Shirley Malcom Addresses Careers Working Group on SEA Change

On January 17, 2018, the NIH Working Group on Women in Biomedical Careers hosted Shirley Malcom, Ph.D., Director of the Education and Human Resources programs at the American Association for the Advancement of Science (AAAS). Dr. Malcom is also the Director of the [SEA Change Program](#) (the Science, Technology, Engineering, and Mathematics Equity Achievement Change Program) at AAAS, which was the subject of her presentation to the working group. SEA Change is a pilot program in which institutions voluntarily collect

data, set goals, and develop action plans for improving their recruitment, hiring, and retention of diverse students, faculty, and staff, including women. While SEA Change is modeled after the successful Athena SWAN (Scientific Women's Academic Network) Charter adopted in Europe and Australia, it pushes beyond the goals of Athena SWAN Charter in addressing diversity based on race, ethnicity, and disability, in addition to sex and gender.

ORWH Launches New Sex and Gender Scientific Interest Group (SIG)

The Sex and Gender in Health and Disease (SGHD) Scientific Interest Group (SIG) held its first meeting on January 23, 2018. The goal of the SGHD SIG is to explore the influences of sex (as a biological variable) and gender (as a social construct) on health and disease across the lifespan. Its purpose is also to promote the dissemination of research and to foster potential interdisciplinary collaborations among NIH scientists who work on, or are interested in, aspects of sex-based research or in sex-differences research relevant to health and disease. The SGHD SIG aims to catalyze new collaborations by leveraging the scientific expertise and acumen at NIH and neighboring research institutions. The most recent meeting of the SGHD SIG took place on March 20, 2018. That meeting featured Anna Naumova, Ph.D., Associate Professor in the Department of Obstetrics and Gynecology at McGill University (Montreal, Canada), whose talk was titled "Sexual Dimorphism in DNA Methylation as a Modifier of Predisposition to Human Disease."



Update on the Development of the New Trans-NIH Strategic Plan for Women's Health Research

On January 26, 2018, Janine Clayton, M.D., Director of ORWH, updated the [NIH Council of Councils](#) on ORWH's development of a 2019-2023 Trans-NIH Strategic Plan for Women's Health Research. A videocast of the entire Council of Councils meeting, in which Dr. Clayton's strategic plan update begins at 5 hrs., 11 mins., is [available online](https://goo.gl/dXKKv6) (https://goo.gl/dXKKv6).

Successful Women in Science Offer Career Advice in a New Video Series

ORWH has launched the "Pearls of Wisdom" video series in which prominent women in science and medicine share words of wisdom about advancing careers in the biomedical field. The first set of videos in the series, produced in collaboration with the National Medical Association, focuses particularly on scientists, physicians, and leaders who are women of color. The videos, each lasting a few minutes, can be accessed through the [NIH Women in Science](#) website (womeninscience.nih.gov). Several videos are now available. More will become available in the coming weeks.

New ORWH Publication Addresses Underrepresentation of Women in Cardiology Research

During American Heart Month (in February, 2018), the journal *Clinical Cardiology* rolled out a special issue titled "Women & Cardiovascular Disease — State of the Woman's Heart — 2018." In an invited review article and perspective piece for this issue, Janine A. Clayton, M.D., and Matthew Arnegard, Ph.D., discuss women's health research across different domains of heart disease. They also review the historical underrepresentation of women in cardiology clinical trials and give suggestions for correcting this disparity. The paper is available on the [Clinical Cardiology](http://onlinelibrary.wiley.com/doi/10.1002/clc.22907/full) website (http://onlinelibrary.wiley.com/doi/10.1002/clc.22907/full).

UPCOMING EVENTS

April 18 Meeting of the ACRWH on the NIH Main Campus, Building 31

ORWH will host the 45th Meeting of the NIH Advisory Committee on Research on Women's Health (ACRWH) from 9:00 a.m. to 1:30 p.m. on April 18, 2018, in Building 31, 6C/Room 10, on the NIH Main Campus. At the meeting, ORWH Director Janine A. Clayton, M.D., will discuss the status of office programs and initiatives. Margaret Bevans, Ph.D., RN, AOCN®, FAAN, ORWH Associate Director, Clinical Research Program, will present an update on the Trans-NIH Strategic Plan for Research on Women's Health. In addition, Diana W. Bianchi, M.D., Director of the **Eunice Kennedy Shriver National Institute of Child Health and Human Development**, will give a talk titled "Inclusion of Pregnant and Lactating Women in Research."

May 3 Symposium on Addressing Health Challenges of Women Across the Lifespan, Arlington, VA

ORWH will host a symposium in the Crystal Gateway Marriott Hotel from 1:00 to 5:00 p.m. on May 3, just prior to the 2018 Congress on Women's Health. The pre-conference workshop will address interdisciplinary approaches to the health challenges that women face across the course of their lives, as well as particularly timely issues, such as substance use disorder and opioid abuse. ORWH's pre-conference event is free to the public. Additional information is provided on the [ORWH website](#).

May 16 3rd Annual NIH Vivian W. Pinn Symposium, Lister Hill Center Auditorium, National Library of Medicine

ORWH will host the next NIH Vivian W. Pinn Symposium from 1:00 to 4:00 p.m. on May 16, 2018, in Lister Hill Center Auditorium at the National Library of Medicine on the NIH campus. This event is open to the public. The symposium recognizes Vivian W. Pinn, M.D., the first full-time director of ORWH (from 1991 to 2011), acknowledging her long-standing leadership in women's health research. This year's symposium will address mentoring and leveraging networks for the advancement of women in science. The event will end with a one-hour professional development and networking opportunity, called "*Catalytic Connections*." Each year, the Pinn Symposium is held during National Women's Health Week, an observance led by the U.S. Department of Health and Human Services. Additional details about the event are available on the [ORWH website](#).

FUNDING OPPORTUNITIES

ORWH is offering the following funding opportunities:

Specialized Centers of Research Excellence (SCORE) on Sex Differences

ORWH recently announced the new Specialized Centers of Research Excellence (SCORE) Program, which has been developed from its predecessor, the Specialized Centers of Research (SCOR) Program. The SCORE Program aims to expedite the development and application of new knowledge to human diseases that affect women, to learn more about the etiology of these diseases, and to foster interdisciplinary research approaches to treatment and/or prevention. SCORE applicants should develop a translational research program in an area of research that considers the sex differences that underlie women's health issues. Applications are due by April 23, 2018. For more information, see FOA number [RFA-OD-18-004](#). Contact ORWH at ORWHinfo@mail.nih.gov if you have questions.

Research on the Health of Women of Understudied, Underrepresented, and Underreported (U3) Populations

ORWH is offering Administrative Supplements to support research on sex/gender influences at the intersection of race/ethnicity and other social determinants of health, including preclinical, clinical, and behavioral studies. The purpose of this FOA is to understand the interaction and intersection of sex/gender, race/ethnicity, biological factors, and social determinants of health and disease, by means of multidisciplinary, interdisciplinary, and/or transdisciplinary studies that explore the intersection as well as hierarchical influences of etiology, biology, pathophysiology, psychology, and more, across a number of disciplines and interventions in understudied, underrepresented, and underreported populations. Also of interest will be projects that highlight common root causes of these disparities and the common pathways for the manifestations of ill health and disease, including differences in risk, risk exposure, resilience, morbidity, and mortality at the individual, community, and/or national levels. Applications are due by April 16, 2018. For more information, see FOA number [PA-18-676](#). Contact ORWH at ORWHinfo@mail.nih.gov if you have questions.

Recently closed:

Administrative Supplements for Research on Sex/Gender Influences

This FOA ([PA-18-658](#)) has recently closed. ORWH is in the process of reviewing applications in coordination with the NIH ICs. Funding decisions are expected by mid- to late-summer. Individuals with questions should contact Dr. Rajeev K. Agarwal at Rajeev.Agarwal@nih.gov.

NIH Office of Research on Women's Health (ORWH)

6707 Democracy Boulevard
Suite 400, Bethesda, MD 20817
Phone: 301-402-1770

ORWHinfo@mail.nih.gov
Twitter: @NIH_ORWH
Facebook: @NIHORWH

Visitor Information	Privacy Policy
Disclaimers	Accessibility
FOIA • OIG	No Fear Act